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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/809,074

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Shinya Nagamatsu

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06/25/2002

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EXAMINER

LEUNG, QUYEN PHAN

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 06/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/809,074

Applicant(s)

NAGAMATSU ET AL.

Examiner

Quyen P. Leung

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-25 are pending.

Claim Rejections - 35 USC § 102

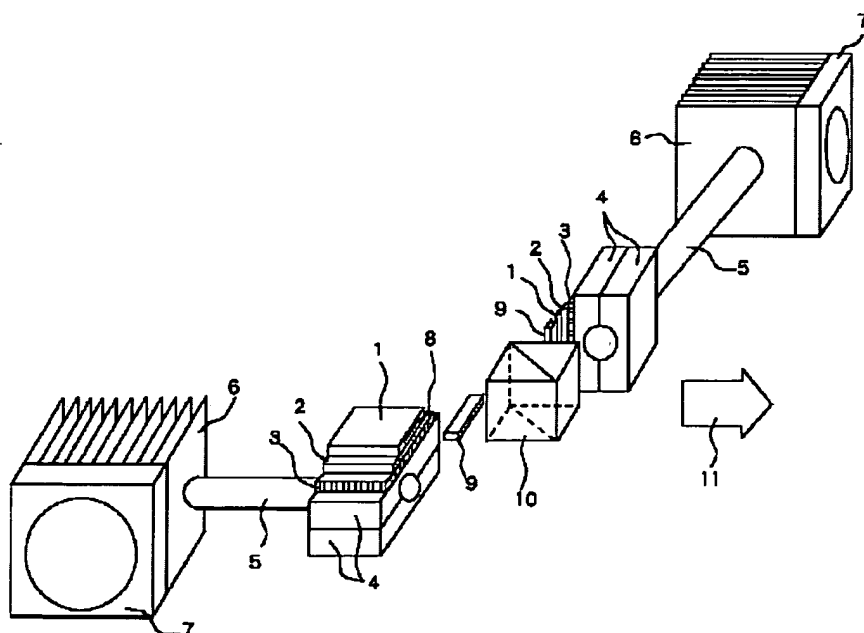
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Imai et al (JP 05-167143A). Imai discloses the claimed invention. Note figure 1 which

【图 1】



illustrates a light source comprising a plurality of densely placed laser diode modules (1), each of the modules (1) having an output of at least 100mW (see abstract which teaches each laser module (1) having an output of 10W).

ABSTRACT:

PURPOSE: To provide a semiconductor laser equipment in which a cooler attached to a light emitting unit thereof can be reduced in size by a safe and simple method and a plurality of light emitting units thereof can be disposed near at hand.

CONSTITUTION: An array semiconductor laser 1 having an optical output 10W is used as a semiconductor laser, mounted at a temperature control Peltier element 3 for controlling a temperature of the laser 1 through a copper spacer 2, integrally disposed on a copper heat block 4, the block 4 is fixed to one side end of a heat pipe 5, a radiating fin 6 is mounted at the other, and forcibly air-cooled by an air cooling fan 7, thereby obtaining an excellent operation of the laser 1. After emitted lights from the two lasers 1 disposed near a light emitting unit 8 are collimated by a collimator lens 9, and polarized planes are disposed to match the input port of a polarized wave combining polarizing beam splitter 10 to obtain a polarized wave combining optical output 11.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai (JP 5-167143). Imai discloses the claimed invention except for the metal substrate (2) also mounting an optical component (9). Note Imai shows a light source comprising at least one laser diode module including a metal substrate (2) mounting a

laser diode chip (1), an optical component (9), a peltier device (3) thermally connected with the metal substrate (2), and a heat pipe (5) having a heat absorbing portion (4) and a heat radiating portion (6), the heat absorbing portion (4) of the heat pipe (5) being thermally connected with the peltier device (3).

Lacking any criticality, it would have been an obvious matter of design choice to have the metal substrate (2) also mounting an optical component (9), since applicant has not disclosed that the metal substrate (2) also mounting an optical component (9) solves any stated problem or is for any particular purpose and it appears that the prior art would perform equally well with the metal substrate (2) also mounting an optical component (9).

Regarding claims 10-11, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

6. Claims 14-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai as applied to claims 2-11 and 13 above, and further in view of Halldörsson et al (5,265,113). Imai has been discussed above except for the heat transfer fluid within the heat pipe (5) for cooling instead of air-cooling. In col. 5 lines 40-45, Halldörsson et al teaches liquid cooling as the most effective type of cooling. It would have been obvious

verted into heat. Typical outputs of the diodes 8 are currently in the range of 100 mW to 5W, so that corresponding thermal outputs of a very small volume must be guided off from a size far below 1 mm³. The most effective type of cooling is liquid cooling. The invention provides water as coolant. Cooling ducts 12 can be integrated into the semiconductor substrate 1 for this purpose.

to one of ordinary skill in the art to modify Imai by employing heat transfer fluid within the heat pipe for cooling instead of air-cooling, as taught by Halldörsson et al, so as to gain the advantageous benefit more efficiently cooling the laser modules.

Regarding claims 24-25, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Conclusion


7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Adsett (5,371,753) teaches a laser diode mount and Verdiell (6,252,726 B1) teaches dual-enclosure optoelectronic packages.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quyen P. Leung whose telephone number is (703) 308-0545. The examiner can normally be reached on 8:30-5:00, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Art Unit: 2828

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Quyen P. Leung
Primary Examiner
Art Unit 2828

QPL
June 20, 2002